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puroindoline	2

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3/9/20 (Item 2 from file: 53)
DIALOG(R)File 53:FOODLINE(R): Food Science & Technology

00683490 FOODLINE ACCESSION NUMBER: 430055
Interaction of puroindolines with wheat flour polar lipids determines their foaming properties.
Dubreil L; Compoint J -P; Marion D
Journal of Agricultural and Food Chemistry 45 (1), 108-116 (38 ref.)
1997
ISSN NO: 0021-8561
LANGUAGE: English
DOCUMENT TYPE: Journal article
FOODLINE UPDATE CODE: 19970317
ABSTRACT: **Puroindoline**-a and **puroindoline**-b are two lipid-binding proteins that have recently been isolated from wheat endosperm. They have good foaming properties and can prevent lipid-induced foam breakdown in a protein system. This paper reports a study of the binding of these proteins with wheat lipids, and the foaming properties of **puroindoline**-lipid mixtures, in order to assess their potential application in breadmaking. The results indicate that puroindolines could play a major role in the formation and stability of bread **dough** foams.
SECTION HEADING: CEREAL PRODUCTS
DESCRIPTORS: APPLICATIONS; BREADMAKING; **DOUGH**; FOAM STABILISING AGENT; LIPID BINDING AGENT; PROPERTIES; **PUROINDOLINE**

10787441 BIOSIS NO.: 199799408586
Interactions of puroindolines with wheat flour polar lipids determines their foaming properties.
AUTHOR: Dubreil Laurence(a); Compoint Jean-Pierre; Marion Didier(a)
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JOURNAL: Journal of Agricultural and Food Chemistry 45 (1):p108-116 1997
ISSN: 0021-8561
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: The interaction of puroindolines with wheat polar lipids and the stability of the corresponding **puroindoline** foams were investigated. Whereas **puroindoline**-a is capable of binding tightly to both wheat phospholipids and glycolipids, **puroindoline**-b interacts tightly only with negatively charged phospholipids and forms loose lipoprotein complexes with glycolipids. Both ionic, hydrogen, and hydrophobic bonds contribute to the stability of **puroindoline**-polar lipid complexes, and the integrity of tryptophan-rich domain is essential for the interaction with neutral polar lipids. Compared with egg white proteins, chosen as a model of nonlipid binding and good foaming food proteins, puroindolines exhibit excellent foam stability, especially in the presence of wheat polar lipids. The higher efficiency of **puroindoline**-a than **puroindoline**-b to prevent foam destabilization by wheat polar lipids highlights the close relationships between lipid binding and foaming properties of these wheat proteins. These results indicate that puroindolines would be good candidates to play a major role in the formation and stability of bread **dough** foams.